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THE VIVARIUM IN THE LONDON ZOOLOGICAL GARDENS.

Few institutions have so well deserved the success they have met with as the London Zoological Society. It has, both by its meetings, its transactions, and its gardens, made many familiar with many of the wonders of creation; it has enabled the very cockney, without losing sight of his beloved London, to gaze on the riches of animated nature, to delight his eye with the plants and trees of distant lands: the whole presented to him in a beautiful and well laid out garden, which, during the last few years, has made such progress that it may fairly rank with the richest and most famed gardens of Europe; at the same time that by a liberal arrangement it is open on certain occasions, and under certain restrictions, to the humblest classes.

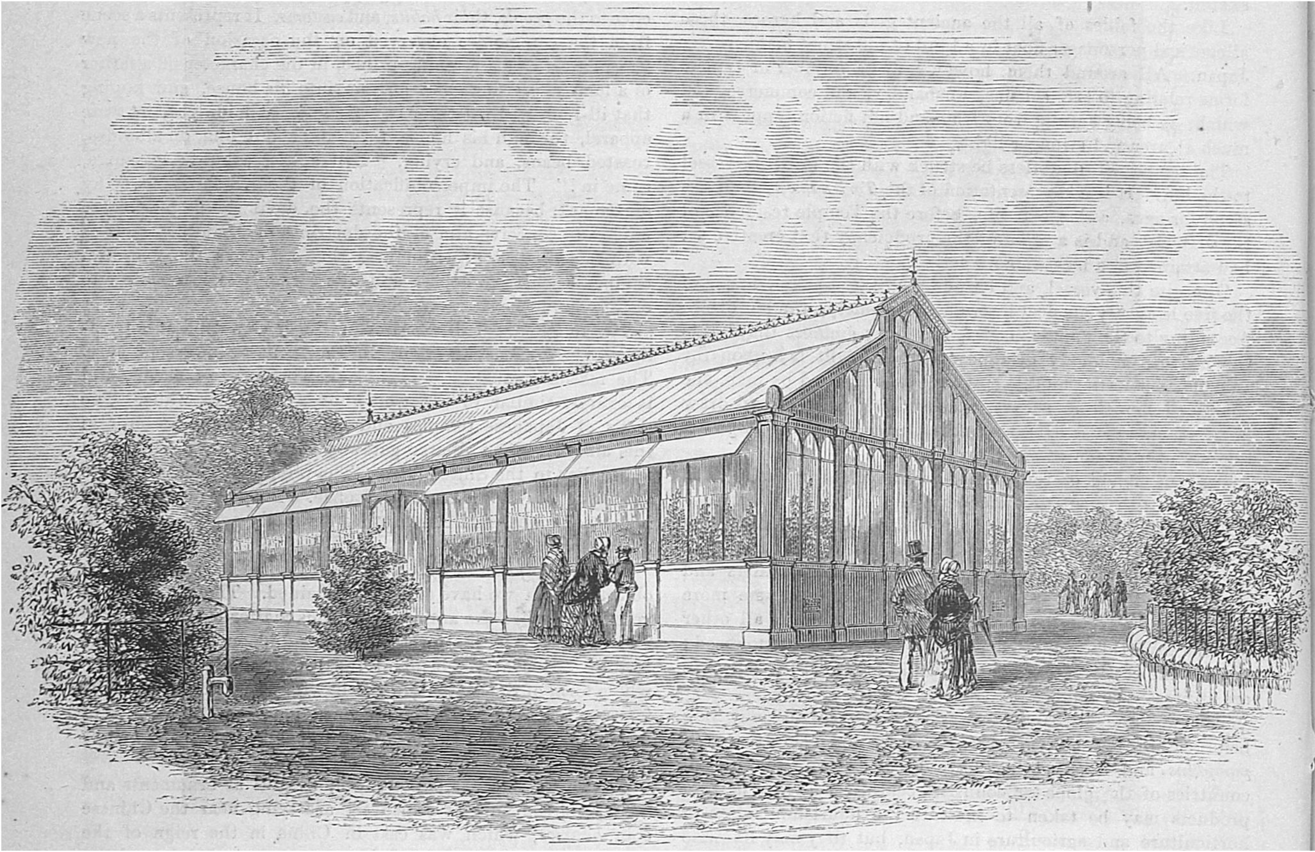

FIG. 1.—VIVARIUM IN THE ZOOLOGICAL GARDENS, REGENT'S PARK, LONDON.

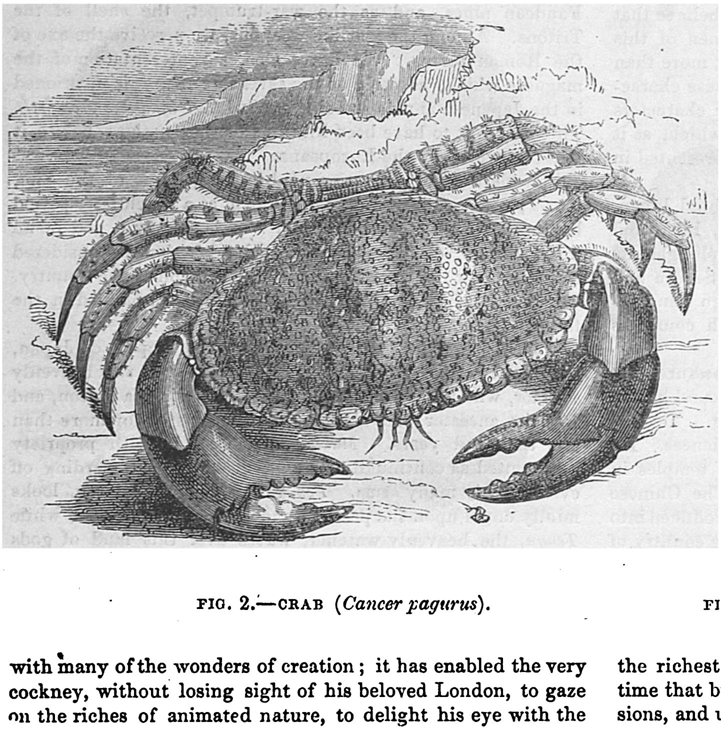

FIG. 2.—CRAB (*Cancer pagurus*).

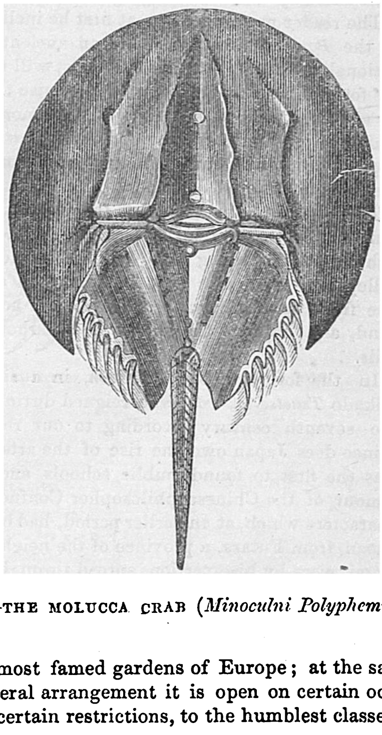

FIG. 3.—THE MOLUCCA CRAB (*Minoculni Polyphemus*).

Recently an addition of great interest has been made to the institution. The wonders of the deep, the secrets of the life under water, of that semi-animal, semi-vegetable life, which is the least understood part of zoology, have been unsealed to us. Near the flower-bed of the Zoological Gardens has been erected a building, like the Sydenham wonder of the world, of iron and glass, with eight tanks full of specimens of zoophyte and crustaceous nature. It is perhaps the most curious and interesting feature in the establishment. The tanks are so arranged that we see their contents at a glance. Filled with rock-sand, gravel, sea-weed, and water, they are then stocked with specimens of the various beings which belong to this department of natural history. The zoophytes have hitherto been a portion of animal creation very little understood. Lesson and Dujardin, in their extensive and admirable works on the subject, confess that it is almost a new department of science. Until the commencement of the present century scarcely anything was really known about the matter, and the division of the zoophytes into classes is yet an arbitrary affair which it will require more complete inquiry to settle

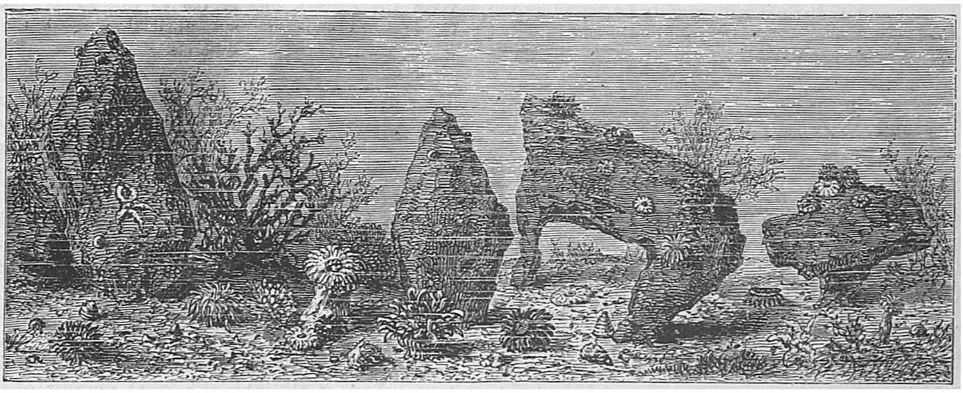

FIG. 4.—SECTION OF A TANK IN THE VIVARIUM.

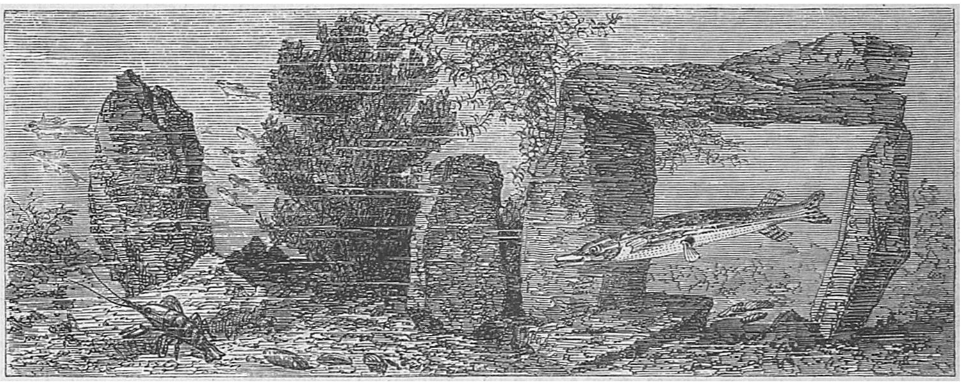

FIG. 5.—SECTION OF A TANK IN THE VIVARIUM.

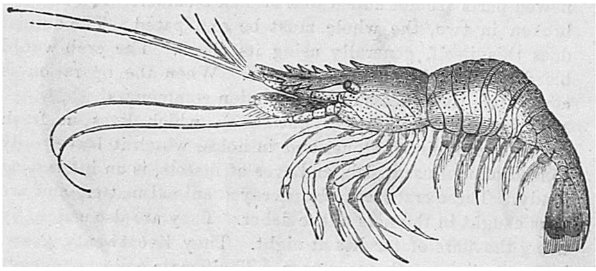

FIG. 6.—PRAWN (*Palæmon serratus* OF LEACH).

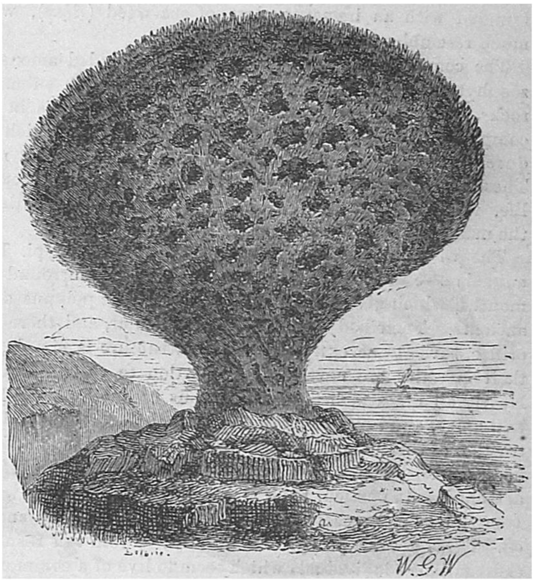

FIG. 7.—COMMON SPONGE.

finally. Some confusion will at first exist in the mind of the student of natural history, through the different views of its professors. But the time is not far distant when even this department of science will be bound by the same rigid rules which have been applied to others.

The reason why any knowledge of this department was necessarily vague and indistinct will readily be found in the difficulty of the study. The zoophytes could only be examined in their natural element, on the occasion of long voyages at sea, or by spending whole days on the banks of rivers and by the sea-side. These animal-plants could not be preserved, could not be kept; at least, the means of so doing had not been discovered. This part of the difficulty has been obviated by the indefatigable industry and perseverance of the secretary of the Zoological Society. We find the tanks plentifully supplied with specimens of zoophytes, with crustacea, star-fish, fish of the genera, Labrus, Cottas, &c. They live before our eyes, move, eat, and are eaten. The actinia and the pecten call attention, the former by the brilliancy of colours and his abundant tentacles, and the latter by his peculiarly shaped open valve. To describe the contents of the tank would be impossible, they are so numerous and varied. They are of English origin. They have long excited attention in Scotland; and Sir John Graham Dalyell, in his "Rare and Remarkable Animals" of that country, speaks of them. The department as yet most complete is that of the actinias. The tank in which they are contained presents a very remarkable appearance, from the variety and richness of the colours. The crustacea are a very interesting feature in the adjoining tank. The whole has somewhat of the effect of the kaleidescope, the contents of every tank being in perpetual motion. Both the scientific and the unscientific may be interested and instructed by a careful examination of the Vivarium.

The zoophytes are the most imperfect of animals, a kind of connecting link between a sloth and a lump of sea-weed. Their nervous system is either elementary or non-existent, and they have no organs of the various senses. They differ from other animals in the circumstance that the body diverges star-like from a centre; hence their name of *Radiata.* Those who have seen them on the rocky sea-shore, spreading out their membranes, or clinging to each other in masses, must at once be struck by their resemblance to a flower, or even to a bush with many ramifications. They have in times past been confounded with an immense class of sea-weed (*Algæ*), which much resembles the zoophyte creation.

The common sponge (fig. 7) has been included among the zoophytes, it being a doubtful substance found on submarine rocks. This substance, of a glutinous character, is in part composed of transparent and spherical globules, which produce *ovoïdes*, which at times are expelled from the mass. These bodies, which move and have an almost imperceptible life, reproduce the sponge, which thus becomes entitled to the name of a zoophyte.

The principal class of zoophytes is that of the polypi. These animals owe their name to the tentacles which surround their mouths, which give them a resemblance to the polypus of the ancients. Their body is cylindrical or ovular, and there is no orifice, save at one extremity; their structure is simple, and their faculties are narrow in proportion to their simplicity. Nearly all are attached to extraneous bodies by their lower extremity, and have no motion beyond the extension and contraction of their tentacles, and of the anterior portion of their bodies. They multiply sometimes by means of eggs, which are detached and expelled, to fix and attach themselves elsewhere; sometimes by excrescences, which grow on the body and fall off. These become polypi in their turn. From this results an aggregation of individuals which seem to live of a common life, as if it were a composite being with one mouth and a thousand bodies and stomachs. Though these stomachs do not open one into the other, there is a vascular communication by which the alimentary matters digested by the one serve for the nutrition of the others.

The bodies of the polypi are often composed of semi-transparent tissue, but with most the lower portion of the tegument becomes hard and petrified. The solid wrapper varies in its form, and represents so many tubes, or so many cells. These polypi, by congregating together, form vast masses, which rise into rocks and shoals in the tropical seas. They rise one upon the other from the bottom of the sea. The stony bark, with which each individual incrusts the lower part of its body, survives the animal, and serves as the basis for other polypi. Generations thus succeed, until they reach the level of the water. All those that find their way above, perish, and the soil formed by their remains ceases to rise; but this soil, which forms on a level with the water, becomes a sunken rock most dangerous to navigators. This draws around remains of vegetables mixed with sand, which form a soil favourable to the development of plants; then, wafted on the waves, come ligneous and herbaceous seeds, which germinate, mingle their roots, and then increase and multiply in this virgin soil, which in a few years is covered by luxuriant vegetation. These islands at last become habitable, and man soon takes possession of them.

The class of infusory zoophytes is composed of animalcules, which are developed in abundance in water where vegetable or animal matter has been infused. Their bodies, round or long, contain in the interior a great number of little cavities which appear to fulfil the functions of a stomach. This has given to them the name of the Polygastric infusories. Their mode of multiplication is doubtful. It would occupy volumes to describe the multitude of these creatures.

Crustaceous animals begin with crabs, lobsters, &c., and go down with some naturalists to the leech of the surgeon. They are articulate animals, which have heart and gills to breathe with in the water. The lowest order are ranged among the intestinal worms. The crustacea have bodies divided into rings, sometimes moveable, sometimes solid. Their tegumentary skeleton presents a strong consistence, due to a very considerable proportion of carbonate of lime. This crust, which has given them the name of Crustacea, is a skin in reality. At certain periods it is detached and falls, as the skin of serpents and the tegument of insects do. We shall allude more fully to this characteristic hereafter.

The head is sometimes free, sometimes fastened to the thorax. This latter supports the head, the pair of feelers, and the mouth, which is adorned with numerous appendages, some of which are regular claws, that serve as a defence against the elements, and aid the progress of the animal. The crab given in our engraving (*Cancer pagurus*) is the one usually consumed by lovers of crustaceous food. It weighs sometimes as much as five pounds. This is the species which reproduces its members, when they are pulled off or broken. The renewed parts are not added to a broken member. If a claw be broken in two, the whole must be extirpated. The animal does this itself, generally using its claws. The crab would bleed to death but for this process. When the operation is completed, the process of reproduction commences.

The river crab (*Astacus fluviatilis*), which lives in fresh water, hiding under stones and in holes, which it leaves only to feed on molluscæ, fish, and eggs of insects, is an interesting study. These crabs eat also decayed animal matter, and are thus caught in the nets of the fisher. They are also caught by using the flare of torches at night. They live twenty years, increasing in growth every year. The female collects her eggs round the false claws, and the young crabs hide beneath their mothers while their shell is hardening.

The period of changing the shell is one of importance to the creature. It is a laborious, painful, and often a fatal operation. By putting a crab in a glass, at the proper season, it can be studied by any one. Some days before it throws its tough skin, it ceases to eat, and the shell begins to detach itself from the body, which becomes loose or thin. The crab begins to rub its claws together, turns on its back, moves its tail, swells its body up, and splits the shell. Then, swelling certain parts of its body, it draws its head back, loosens its eyes and large and small claws, and by a sudden jerk gets out of the shell. The operation is often fatal, but, if successful, the new shell is formed in twenty-four hours.

The organs of sight and hearing in the crustacea are small; their eyes have but very little power of sight, while their organ of hearing is at the external base of the antennæ, and is composed of a membrane like that of the tympanum, above which is a kind of cell full of liquid, where ends a nerve. Not much is known as to their sense of smelling and taste. Most live on animal matter, and very few imbibe any liquid matter. Their blood is white, or rather of a lilac tinge. The heart is situated in the middle of the back, and has but one cavity. Its contractions drive the blood to the arteries, which distribute it over the body. The veins are very incomplete. The crustacea being aquatic, their breathing is similar to that of other aquatic animals, though some breathe through their skin.

All the crustacea are oviparous. The female, after laying her eggs, keeps them for some time hanging under her stomach, or even among the numerous flaps of her tail. The young undergo scarcely any change after their adult age, except the increase of the number of their claws.

It would occupy too much time to describe all the genera of the class of crustacea. The Decapod Crustacea are the most numerous class. The head and thorax of these crustacea are confounded in a single mass, covered by a carapace. This dorsal buckler projects beyond the forehead, descends on each side to the edge of the paws, and goes back to the abdomen. The sea and land-crab are of this race.

A very common crab is the *Cancer puber*, which is covered by a yellow head of down, and has black claws. The *Cancer cursor* of Linnæus, or running crab, which is found on the shores of the Mediterranean, runs with such velocity, that a horse at a gallop can scarcely catch it. During the day this animal lives in holes dug by himself in the sand, and comes out only at night. In the Indian Ocean there is discovered, in great numbers, a crab called by naturalists *Podophthalmus spinosus*, which has very long projecting eyes. The *Cancer ruricola*, which the French have christened the *Tourlourou*, or raw recruit, is blood-red, with yellow spots, which form the letter H very distinctly. This species is very common in the West Indies. The *Tourlourou*, instead of living in the water, dwells in damp woods. It breathes, however, in the same way as the water-crab, by the gills, which, however, require more oxygen than water can dissolve, and act in the air like lungs. Nature, to prevent their drying up, has placed at the bottom of the breathing cavity sometimes a sort of cell, which receives the water necessary to maintain humidity round the gills; sometimes a spongy membrane in the vault of this cavity.

These animals live chiefly on vegetables, and are nocturnal and crepuscular. They dwell in the hills, sometimes a long way from the sea; during the rainy season, they quit their land habitation, to go down to the water. They congregate in large troops, and start on their journey. The traveller who is delayed at night in South America on his road, will often fall in with this singular army crossing woods, fields, and rivers at a rapid rate; checked by no obstacles, and sweeping all before them in their ravages. These periodical journeys are taken in time to renew the water in their gill-supplying cells. Doctor Lamaout says: "Admiral Drake having landed, in 1605, some of his crew on a desert coast of South America, these famished crabs fell upon them, bit their legs, upset them, and devoured them." We fancy this must be a traveller's tale.

The sea spiders are a kind of crab with very long claws. The *Maia squinado*, or *Cancer maia*, is of this kind. It is four inches long and three broad. Its back is all covered by hairy pimples. This species is very common in the ocean and in the Mediterranean. The ancients considered it sacred to Diana of Ephesus. They attributed to it great wisdom and a love of music. On many Greek medals are fac-similes of this crustaceous animal.

Craw-fish and lobsters have their tails at least as long as their bodies. They are naturally swimmers, scarcely ever come on shore, and seldom walk at the bottom of the water. They keep moving about, and the vigorous movements of their tails impel them forward with great rapidity. Lobsters are crustacea with cylindrical antennæ, very long and covered with prickly points; their paws are without claws, while on their forehead are two long bending horns. Such is the common lobster (*Astacus elephas*), of which we give an illustration (fig. 8). This is often a foot and a half long, and, with its eggs, will weigh twelve or fourteen pounds. Its armour is thorny, and covered with a kind of down. The back is of a greenish brown, and the tail is dotted by yellow spots. This race inhabits the coasts of the milder climates of Europe. During the winter they remain in the depths of the sea. In the spring they come out to the shore, and lay their numerous and ruddy eggs in the holes of rocks.

The sea craw-fish (*Astacus marinus*) often reaches an immense size, even more than a foot and a half long. This crustacean is found in the European seas, and on the coast of America.

The Palemons include the prawns and shrimps. The *Palæmon serratus*, or common prawn, represented in our drawing (fig. 6), is from three to four inches long. It is of a pale-red colour, and is a favourite article of food with large portions of the inhabitants of Europe. A little parasitical crustacean is often found upon them, the *Bopyrus crangorum*, which by certain fishermen is taken to be the young sole.

The hermit crab (*Cancer bernhardus* or *Pagurus*, fig. 8) has a large abdomen, which projects backwards in a very peculiar way. The hind quarters of the animal are thus exposed to continual assault. But what nature has refused, the strange instinct of the animal provides. The hermit finds a univalve shell, in which it inserts itself by means of its hind claws; this parasitical protection it drags after it everywhere, and even sometimes gets into it altogether, its fore paws being alone visible. Every year, in the early months, when the animal changes its skin, it goes about looking for a fresh shell—a shell more proportioned to its new growth. The crab may be seen lodging-hunting with all the care and precision of a particular old maid. It pokes its nose and then its tail into every spiral shell it meets, until it finds precisely the fit it wants. As soon as the brute finds one which thoroughly suits it, the old house is cast away, and the new one popped into with the utmost agility. The shell sticks so fast, that you can only get the crab out by using fire. Many different names have been given to this animal—the soldier, Diogenes, the hermit—all of which are significant enough. A very correct representation of it is given in our engraving.

The *Birgi* are great crustacea of the Indies, somewhat like the *Pagurus*. The most remarkable of the species is the *Cancer latro*, or robber crab. This animal leaves the sea at night and climbs up the cocoa-nut tree to steal the fruit, of which it is very fond. Some of our young readers may recollect a humorous scene in illustration of this, in the "Swiss Family Robinson." This animal, by its peculiar habits, brings to the knowledge of the naturalist a singular anomaly in amphibious life. The robber crab is followed in its land trips by another animal, breathing through the gills. A rare animal of the *Bercha* species, the *Perca scandens*, also quits its natural element as if in search of the crab, which it follows to the trees where it is feeding. The *Perca* is peculiarly constituted to retain a certain quantity of water to moisten the gills, which, by the closing of their extremities, are preserved from the air.

There are many other minor crustacea. One of these is the *Oniscus ceti* (fig. 13), found on the body of the whale, and on the mackerel. The *Oniscus asellus*, or common woodlouse (fig. 16), and its varieties, are well known in our houses and gardens. It is a small animal, with eight rings of shell. Its gills are under the front scales over the tail. They roll up into a round ball when touched, which makes them an object of wonder to children. These animals frequent retired and dark places, and are found often under stones. They feed upon corrupt animal and vegetable matter, and rarely come forth, except in damp weather. The female collects her eggs in a membranous pocket under the thorax; the little ones come to life there, and are carried about by her everywhere she goes. If you take one of them and turn it on its back, the little ones may be seen running in and out of the membranous pocket. The common woodlouse is smooth, of the colour of ashes, with black spots, and a little yellow; but some are found in the country which have, like it, ten rings, without counting the head and tail. The front is very smooth, of a brown hue, specked with gray, but without any yellow spots. The armadillo woodlouse is broad, smooth, and shining. It is black, with a little white about the edges of the rings. Of the first ten rings which compose its body, without counting the head and tail, the first seven are wide, and the three others are narrow.

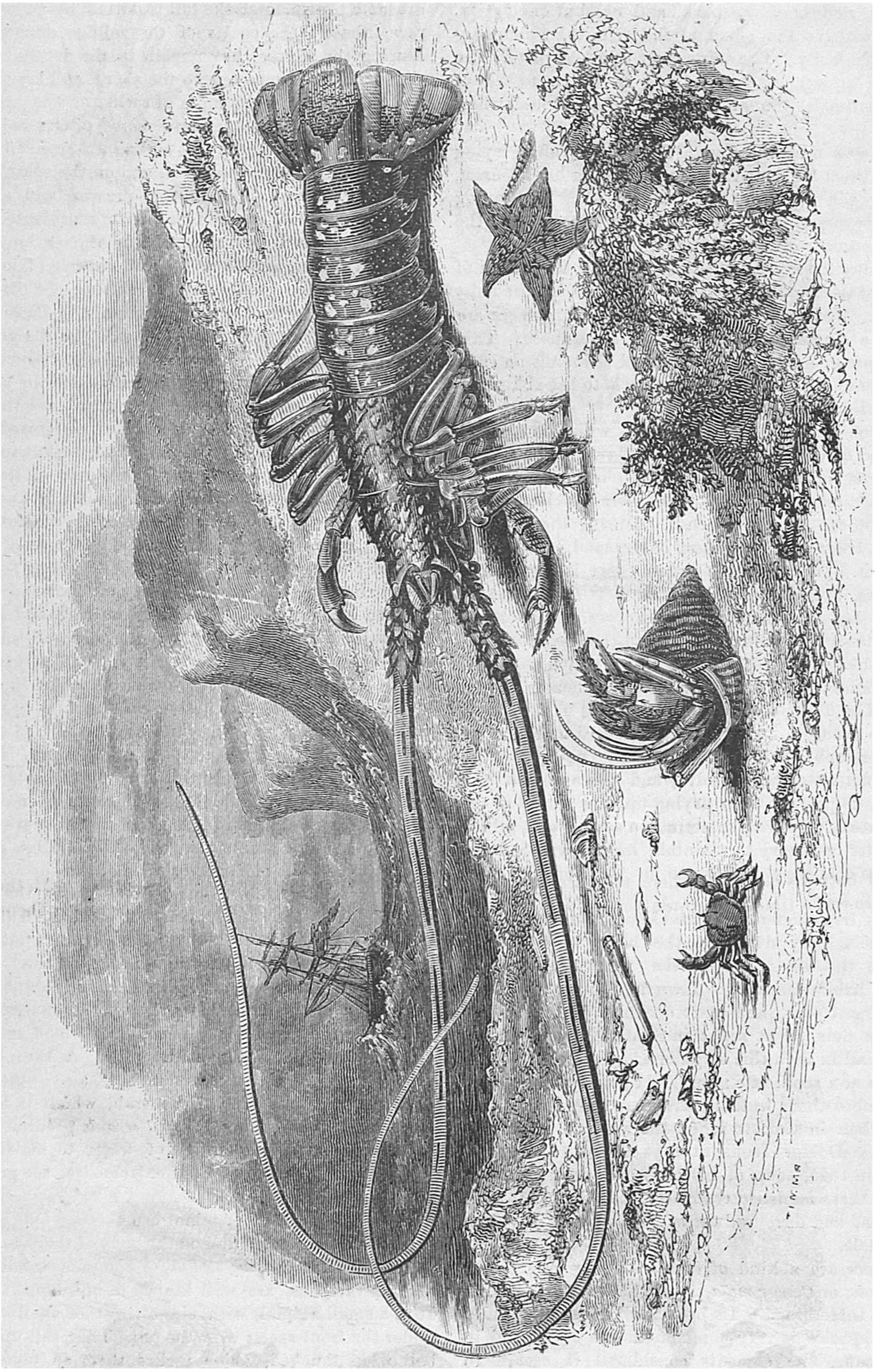

FIG. 8.—THE COMMON LOBSTER AND THE HERMIT CRAB.

Passing from these to the cirrhipedes, we find them to be a link between the crustacea and the mollusca. They all belong to the sea, swim freely when young, and then fix themselves for ever on some submarine body. They adhere by the back. Their form is elongated, their bodies are bent, and contained in a shell of several parts. They have no eyes, their mouth is like that of the crustacea; the lower part of their body is composed of two ranges of gristly lobes, with two horned appendages with numerous projections. These, about four and twenty in number, the animal keeps constantly in motion, and thus draws within her little vortex the animalcules on which it feeds. They have their heart in the dorsal part of their backs, and breathe through gills.

The *Lepas anatifera* is enclosed in a kind of gauzy cover, suspended on a fleshy tube. This tube serves for them to fasten on to rocks and bottoms of ships, where they are known as barnacles. There was a time when birds were said to grow out of them. The sea-acorns are a small species of the cirrhipede group. They are enclosed in a short shell (figs. 14 and 15).

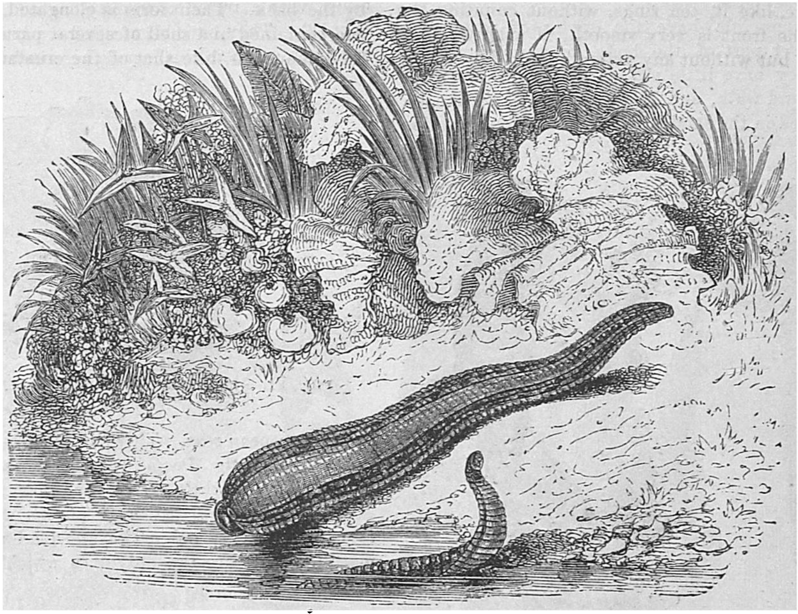

FIG. 9.—THE MEDICINAL LEECH (*Hirudo medicinalis*).

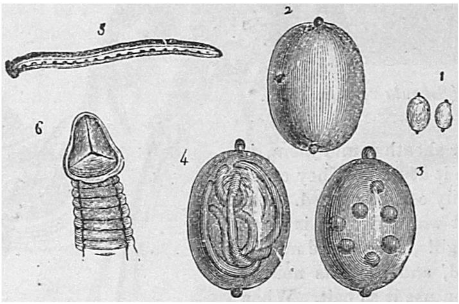

FIG. 10.—LEECHES IN VARIOUS STAGES OF DEVELOPMENT.

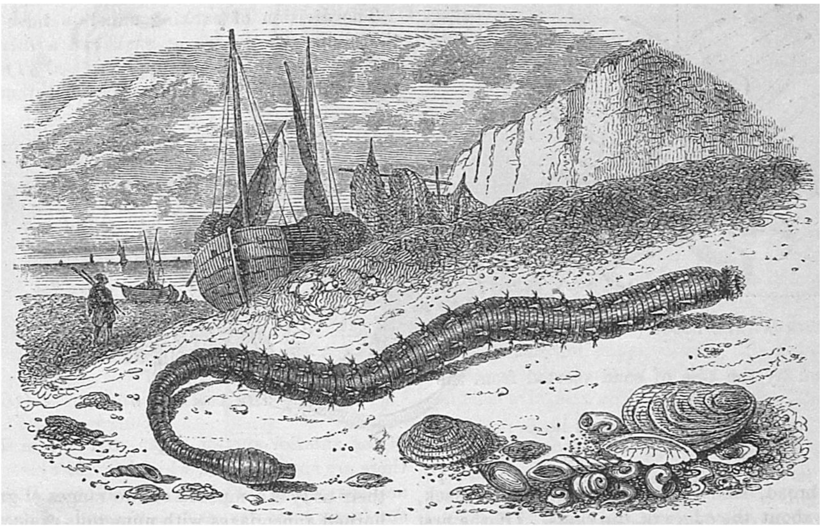

FIG. 11.—THE FISHERMAN'S SAND-WORM (*Lumbricus marinus*).

The class of worms are divided into annelida, rotators, and intestinal worms. The worms of the order of annelida have red or highly-coloured blood. This analogy with the superior order of animals made some naturalists place them at the head of articulated animals; but in every other point of their organisation they are compared to insects and crustacea. Their body is long, soft, and divided into a great many rings. Some have little spots, which have been suspected to be eyes. The mouth is at the extreme end, while they breathe, some in the ordinary way, some by gills.

The wandering annelida have the organs of respiration fixed upon the lower part of the body, or throughout the whole length. They have little silky knobs, which serve as feet. They swim and walk, and live generally under stones, among shells or fixed in the sand. A kind of mucous secretion spread over the body collects a tubular sheath round them, in which they dwell; but they can leave it at will. They are of the sea, and very numerous. Some only can be quoted. The *Lumbricus marinus*, or fisherman's sand-worm (fig. 11), is about ten or twelve inches long, and has no gills, save in the middle of the body; its head is not defined, and presents neither antennæ, nor eyes, nor jaws: fishermen use it as bait. When taken up in the fingers, they exude a liquid which stains the skin. They are found two or three feet deep in the sand, and their retreat is marked by the pile of sand ejected from the hole they make.

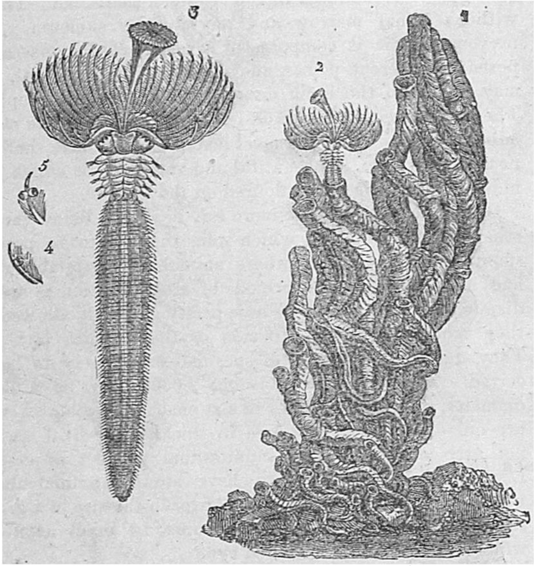

FIG. 12.—THE VERMICULAR SERPULA (*Serpula vermicularis*).*

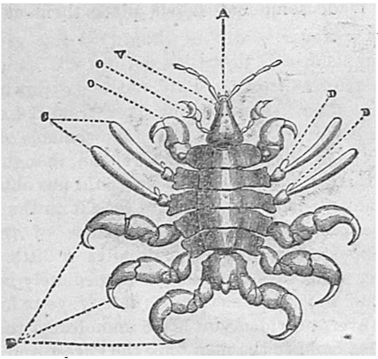

FIG. 13.—THE WHALE-LOUSE (*Oniscus ceti*).†

The tube-dwelling annelida have no distinct head, no jaws, no eyes, no antennæ; but towards the tail are numerous appendages doing the office of all these members. They inhabit a tube. Such are the serpulæ, which live in calcareous tubes, upside down, with a tufted extremity, as will be seen from the cut (fig. 12). They have been called sea-brushes. The particular specimen given is the *Serpula vermicularis* of Linnæus, found in the European seas. There is one little known member of this division, the *Dentalium elephantinum*, which lives in a regular tube, slightly arched, and open at both ends.

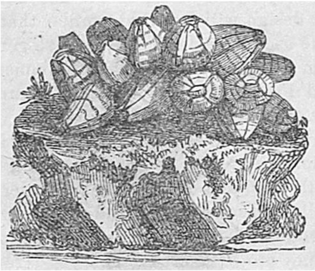

FIG. 14.—THE FURROWED SEA-ACORN (*Lepas balanus*).

The common earth-worms (*Lumbricus terrestris*) are, as every one knows, red. They feed on animal and vegetable matter. They are the only ones which do not live in water. They breathe through their pores, and multiply by the division of their bodies into one or more parts.

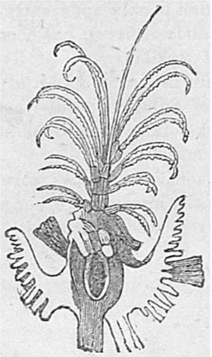

FIG. 15.—THE FURROWED SEA-ACORN (*Lepas balanus*), FULL GROWN AND OUT OF ITS SHELL.

The division of sucking annelida have no silky down on the skin. They have at each end a dilatable and catching cavity, which acts like a cupping-glass. The animal fastens on to anything firmly by this means. The mouth is at the bottom of the anterior suction organ, and is armed with jaws, while there are spots around, which may be eyes. All feed on other animals, which they suck or swallow. Some fasten on to fish and frogs; some devour mollusca and the larvæ of insects; some fasten on to animals, and even to men when in the water. Some are known to enter the mouths of horses when drinking, and creep under their tongues, or into their throats. Such are the leeches, which have an oval organ of suction ten eyes,

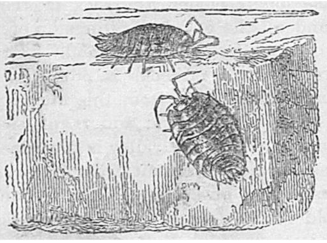

FIG. 16.—THE COMMON WOODLOUSE (*Oniscus asellus*).

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* 2, The animal in its tube; 3, The animal out of its tube; 4 and 5, Extremity of a gill.

† A, The mouth; V, The eyes; O O, The first pairs of feet, the anterior of which is fixed below and behind the head; B, the third, fourth, and fifth pairs of claws; C, Appendages of the second and third segments, having at their base the orifice of the respiratory organs, D D.

and jaws armed with teeth. When a leech wishes to get through the skin of the animal to which it is fixed, its fangs are fastened upon the skin, the tubercules which support the jaws stiffen, contract, and the dental appendages cut the skin. Three little wounds are made, like the letter Y, whence the blood issues drop by drop, and passes into the animal's vast stomach. Every one is aware of the use made of these, and to many our design will be more familiar than agreeable. Of late years the use of leeches has become so general, that these animals form an important branch of commerce. The ponds of Spain and France have been entirely cleared, and they are now brought from Hungary and Turkey.

The medicinal leech (*Hirudo medicinalis*, fig. 9) is from four to five inches long, with ninety-eight equal rings. The opening of the mouth is found longitudinally under the upper lip, while the belly is olive-coloured and spotted with black. The mode of reproduction in leeches was very little known until recently. They are oviparous. The eggs, to the number of eight or fifteen, are surrounded by a membranous capsule, which is covered by a regular cocoon; this cocoon is formed of a semi-transparent tissue. The young leeches creep out of a small orifice at the proper time (fig. 10).*

The rotatory worms have only been known since the discovery of the microscope. As long as this instrument only magnified them a hundred-fold, no distinct organ could be seen in their interior, and they were quoted as examples of a kind of animated jelly, feeding by absorption. But modern naturalists have, by means of powerful instruments, discovered that their organisation is only apparently simple. One of this division, the *Furcularia rediviva*, has been made celebrated by the experiments of Spallanzani. It lives in fresh and salt water, and is found in gutter-pipes of houses. Its life is suspended by loss of humidity; but when it has been apparently dead for weeks, it suffices to damp it with one drop of water to give it life and motion.

The last division consists of those worms which are capable of existence only in the interior of other animals, which lodge in the liver, the eyes, and the digestive canal. They are oviparous and viviparous. The tape, or solitary worm, is well known. There are many individuals of this species. All animals are subject to them. They cause sickness, thinness, devouring appetite, suffering, and even death. The *Tænia vulgaris* has reached three hundred feet in length. Boërhaave freed a Russian nobleman of one as large as that. They are, like the *Tænia solium*, very difficult of extirpation. Some are found in the brains of sheep, others in the liver of animals and man.

The mollusca and the zoophytes form the last divisions of zoology. The mollusca include oysters, snails, &c. They are without spinal marrow and any interior skeleton. Their nervous system is composed of several medullar masses, disposed at different points, and of which the principal, which may be called the brain, is situated across the œsophagus. They are extremely varied in form, soft, and with the muscles adhering to the skin. In most instances they have shells. In nearly every case, the beautiful and varied shells which are so much admired are only coloured on the outside.

Of the zoophytes little more can be said. Below them are other aquatic creations, which were thought to be produced spontaneously in water where animal and vegetable matter had been infused. Their mode of multiplication is even yet disputed. It is, however, now pretty generally allowed that they propagate by the division of their bodies into parts. They are in some instances so small as scarcely to be conceived. Imagine an animal one-2,000th part of a line in diameter, digesting his food in a stomach the coats of which are one-6,000,000th of a line in thickness! Still we have not arrived at the most infinitesimal product of creation. Leuwenhoeck and Malesieu have studied animalcules, of which 10,000,000 united would not reach the size of a grain of sand; and others 27,000,000 of times as small as a mite, which is invisible to the naked eye.

* *Note to fig.* 10.—1, Capsules recently laid; 2, A capsule developed; 3, A developed capsule, showing the eggs; 4, A capsule containing the young leeches about to be hatched; 5, A leech lately hatched; 6, Mouth of the full-grown leech, showing the three triangular jaws.

VALLEY OF LAUTERBRUNNEN.

The Valley of Lauterbrunnen is the favourite resort of summer tourists in Switzerland. Its length is about fifteen miles; its breadth seldom exceeds half a mile. It has been likened to a deep chasm formed in a mass of mountains, and straitened between the vertical walls of the cliff. There is scarcely any country in the world which contains so many cascades in so small a space as this valley. A recent writer says, "In the way of valley there is nothing like it; the crag, the torrent, the lonely châlet, the rock of the hunter, the eternal Alps, and all the delicious fillings up of turf and tree are here strewn about by a mighty hand." On the western side, the enormous chain of rocks is more lofty and craggy than on the opposite side, and from this abrupt declivity the streams rush down to swell the waters of the Lütschine. About a mile and a half up the valley is the Scheinige Platte, with its red and rounded summit, from which it is said the genius of the mountain once flung a chamois hunter.

A strange old story is this Lauterbrunnen legend, and a fitting locality is that which has been selected as the site of the event. Once upon a time a hunter, bold as a lion, and an ardent lover of the chase, pursued a doe heavy with young, from rock to rock, from crag to crag. At length the poor animal was completely exhausted, and on reaching the edge of a steep precipice her strength failed, and she sank down to die. The stag, when sorely pressed, when no hope of escape remains, when the bay of the hound draws near—weeps—so wept the doe; but the hunter's heart was steeled, and preparing his cross-bow, he took a deadly aim. Suddenly his hand shook, his limbs trembled, his eyes were fastened on the figure of an aged man, who, seated on the rock, stretched out his hand, which the chamois licked with affection. "Man of the valley," the stranger said, "to whom God has given all the riches of the plain, why dost thou pollute this mountain with thine unhallowed footsteps? I do not come down and take your chickens from the coop, your oxen from the stall; why then do you come up to me, to slay the chamois of the rock, the eagle of the clouds?" The man replied, though trembling and afraid, that he was poor, that he could not obtain food in the valley, and so had been driven to seek it on the mountain. At this the ghostly man, the apparition of the Lauterbrunnen, appeared to reflect, and after a little began to milk the doe, and the milk changed immediately into cheese. "Here," said he, "is something to satisfy your hunger. It will last for ever, provided you leave unmolested the chamois and the eagle." And so the man took the cheese and departed; and sure enough, the story goes, his cupboard from that day was always found well supplied with this dainty and miraculous cheese; it bulked out an endless feast, and the chamois gained confidence in man and came down into the valley. One day the old love of sport came strongly on the man, and as he watched the chamois play before his châlet, he lifted his cross-bow, took aim, and killed it. Like the albatross, shot by the ancient mariner, it proved a bitter curse to him. The cheese lasted no longer. The man hunted as heretofore up among the craggy tops and mountain heights, until at last came the end: a chamois, shot by him, fell over a precipice; he watched its terrible descent, striking now upon this outstretched branch, now on yon craggy point; but, lo, at the bottom there